MAGNETICALLY COUPLED LINEAR SERVO-DRIVE MECHANISM

ABSTRACT OF THE DISCLOSURE

The mechanism comprises a magnetically coupled drive mechanism for transporting semiconductor wafers in a semiconductor wafer processing system. The mechanism includes an actuator within a cylinder that contains a set of magnets that drive a complementary set of magnets inside a carriage along a linear path. The carriage is limited to linear motion via a linear ball slide. The magnets in the actuator and carriage are magnetically coupled in such a way as to prevent angular rotation of the magnets within the actuator. Accordingly, driving elements in the actuator can be moved via rotation of a ball screw shaft coupled to a ball nut affixed to the actuator magnets.